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(54) SYSTEM AND METHOD FOR TRANSMITTING VOICE PACKET

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a system and a method for avoiding the deterioration of communication quality when performing real time data communication being representative of a voice communication on a packet communication network, where the band reservation or preferential control function of communication data is not performed.

SOLUTION: This system is provided with a means for transmitting one voice packet to a communication line network plural times before transmitting the next voice packet to the communication line network.

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## CLAIMS

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[Claim(s)]

[Claim 1] The packetized voice transmitting method characterized by having a multiple-times transmitting means to transmit the packetized voice of 1 to the multiple-times aforementioned communication line network before transmitting the following packetized voice to a communication line network.

[Claim 2] It is the packetized voice transmitting method characterized by having the means written in said storage means while said multiple-times transmitting means transmits a storage means and a packetized voice in a packetized voice transmitting method according to claim 1, and a means to transmit said packetized voice memorized by said storage means 1 time or more.

[Claim 3] It is the packetized voice transmitting method characterized by having a means by which said multiple-times transmitting means writes a storage means and a packetized voice in said storage means in a packetized voice transmitting method according to claim 1, and a means to transmit said packetized voice memorized by said storage means 2 times or more.

[Claim 4] It is the packetized voice transmitting method which said

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communication line network is the Internet and is characterized by said packetized voice being a RTP (Realtime Transport Protocol) packet in a packetized voice transmitting method given in claim 1 thru/or any 1 term of 3.

[Claim 5] It is the packetized voice transmitting method characterized by transmitting said packetized voice by the layer of UDP/IP (User Datagram Protocol/Internet Protocol) in a packetized voice transmitting method given in claim 1 thru/or any 1 term of 4.

[Claim 6] The packetized voice transmitting approach characterized by having the multiple-times transmitting step which transmits the packetized voice of 1 to the multiple-times aforementioned communication line network before transmitting the following packetized voice to a communication line network.

[Claim 7] It is the packetized voice transmitting approach characterized by having the step for which said multiple-times transmitting step prepares a storage means in the packetized voice transmitting approach according to claim 6, the step written in said storage means while transmitting a packetized voice, and the step which transmits said packetized voice memorized by said storage means 1 time or more.

[Claim 8] It is the packetized voice transmitting approach characterized by

having the step for which said multiple-times transmitting step prepares a storage means in the packetized voice transmitting approach according to claim 6, the step which writes a packetized voice in said storage means, and the step which transmits said packetized voice memorized by said storage means 2 times or more.

[Claim 9] It is the packetized voice transmitting approach which said communication line network is the Internet and is characterized by said packetized voice being a RTP (Realtime Transport Protocol) packet in the packetized voice transmitting approach given in claim 6 thru/or any 1 term of 8.

[Claim 10] It is the packetized voice transmitting approach characterized by transmitting said packetized voice by the layer of UDP/IP (User Datagram Protocol/Internet Protocol) in the packetized voice transmitting approach given in claim 6 thru/or any 1 term of 9.

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## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] Especially this invention relates to the method which transmits a RTP (Realtime Transport Protocol) packet as a packetized voice in the Internet, and its approach about the transmitting method of a packetized voice, and its approach.

[0002]

[Description of the Prior Art] In recent years, the packet communication network

has spread in connection with the prosperity of the Internet. The packet communication network represented by the Internet developed for the purpose of performing data communication. Therefore, it is suitable for the usage which sends mass data to a partner terminal certainly.

[0003]

[Problem(s) to be Solved by the Invention] However, it is not suitable for the communication link of the data which need the real time nature represented by voice communication.

[0004] In order to solve this problem, band reservation, a priority control, etc. are considered in the device for guaranteeing real time nature on a packet network. RSVP (Resource Reservation Protocol) and Diffserv (Differentiated Services) are this example. However, these techniques are development ways and are not yet put in practical use in many networks.

[0005] When it is the network where perfect band reservation is not realized and data focus and flow into the one exchange at a certain moment, the processing delay of data becomes large and data cancellation may take place as a result. When a network failure occurs, cancellation of data may take place similarly. Consequently, degradation of voice communication quality takes place.

[0006] Although the data canceled by resending can be compensated with data communication, delay will increase as a result and real time nature will be spoiled.

[0007] This invention aims at offering the method which avoids the above-mentioned communication link quality degradation when performing real-time data communication represented by voice communication on the packet communication network which does not perform band reservation or the priority-control function of commo data, and its approach.

[0008]

[Means for Solving the Problem] The packetized voice transmitting method by this invention is characterized by having a multiple-times transmitting means to transmit the packetized voice of 1 to the multiple-times aforementioned communication line network before transmitting the following packetized voice to a communication line network.

[0009] Moreover, the packetized voice transmitting method by this invention is characterized by equipping said multiple-times transmitting means with the means written in said storage means while transmitting a storage means and a packetized voice, and a means to transmit said packetized voice memorized by



said storage means 1 time or more in the above-mentioned packetized voice transmitting method.

[0010] Furthermore, the packetized voice transmitting method by this invention is characterized by equipping said multiple-times transmitting means with the means which writes a storage means and a packetized voice in said storage means, and a means to transmit said packetized voice memorized by said storage means 2 times or more in the above-mentioned packetized voice transmitting method.

[0011] Furthermore, in the above-mentioned packetized voice transmitting method, said communication line network of the packetized voice transmitting method by this invention is the Internet, and said packetized voice is characterized by being a RTP (Realtime Transport Protocol) packet.

[0012] Furthermore, said packetized voice is characterized by transmitting the packetized voice transmitting method by this invention by the layer of UDP/IP (User Datagram Protocol/InternetProtocol) in the above-mentioned packetized voice transmitting method.

[0013] The packetized voice transmitting approach by this invention is characterized by having the multiple-times transmitting step which transmits the

packetized voice of 1 to the multiple-times aforementioned communication line network before transmitting the following packetized voice to a communication line network.

[0014] Moreover, the packetized voice transmitting approach by this invention is characterized by said multiple-times transmitting step having the step which prepares a storage means, the step written in said storage means while transmitting a packetized voice, and the step which transmits said packetized voice memorized by said storage means 1 time or more in the above-mentioned packetized voice transmitting approach.

[0015] Furthermore, the packetized voice transmitting approach by this invention is characterized by said multiple-times transmitting step having the step which prepares a storage means, the step which writes a packetized voice in said storage means, and the step which transmits said packetized voice memorized by said storage means 2 times or more in the above-mentioned packetized voice transmitting approach.

[0016] Furthermore, in the above-mentioned packetized voice transmitting approach, said communication line network of the packetized voice transmitting approach by this invention is the Internet, and said packetized voice is

characterized by being a RTP (Realtime Transport Protocol) packet.

[0017] Furthermore, said packetized voice is characterized by transmitting the packetized voice transmitting approach by this invention by the layer of UDP/IP (User Datagram Protocol/InternetProtocol) in the above-mentioned packetized voice transmitting approach.

[0018]

[Embodiment of the Invention] The configuration of the operation gestalt of this invention is shown in drawing 1 . The case where 10msec(s) and silent compression are performed for a packet-ized time interval is explained as an example.

[0019] The packetized voice transmitting method by this operation gestalt consists of the packetized voice generation section 1 which receives and packet-izes voice data from the audio input unit which is not illustrated, the packet duplicate section 2, the memory 3 with the function to hold one packetized voice, and the communication link layer 4 that transmits a packetized voice to the packet network which is not illustrated.

[0020] The packetized voice generation section 1 receives voice data from the audio input unit which is not illustrated, generates a packet every 10msec(s),

and transmits to the packet duplicate section 2. A packet is not generated when the voice inputted from the audio input unit is silent.

[0021] The packet duplicate section 2 is started every same 10msec(s) as a packet-ized time interval. If it starts, it checks whether the packetized voice is held at memory 3, the packet duplicate section 2 reads it, when held, and it will clear memory 3 while it transmits the read packetized voice to the communication link layer 4. When packetized voice a is furthermore received from the packetized voice generation section, while reproducing it and holding in memory 3, it transmits to the communication link layer 4.

[0022] Memory 3 holds packetized voice b in memory according to the write request which is not illustrated from the packet duplicate section 2. Moreover, it illustrates, twists and reads and packetized voice c is sent out to the packet duplicate section 2 according to a demand. notice d Moreover, make existence of a packet into the packet duplicate section 2 according to the packet existence acknowledge request which is not illustrated. Moreover, memory is cleared when the clear directions instruction which is not illustrated is received.

[0023] In addition, as for the voice data which transmits a packet screen oversize, it is common to packet-ize using the image and the protocol for voice

communications which are represented by RTP (Realtime Transport Protocol), and this operation gestalt is also based on this. Therefore, the packetized voice generation section 1 shall generate a RTP packet. In this case, as for the communication link layer 4, it is common to use UDP/IP (User Datagram Protocol/Internet Protocol).

[0024] Moreover, with the equipment of the packetized voice receiving side which is not illustrated, when the duplicate packet is received, by checking the sequence number included in a RTP packet, it shall be detected and it shall have the function to cancel.

[0025] Actuation of the packet duplicate section 2 of drawing 1 is explained using drawing 2.

[0026] The packet duplicate section 2 is started every same 10msec(s) as a packet-ized time interval. It checks whether the packetized voice is stored in the memory 3 after starting (step 100). When stored, memory 3 is read, and the stored packetized voice is transmitted to the communication link layer 4 (step 101). The memory 3 after packetized voice transmission is cleared (step 102).

[0027] Next, the existence of the new packetized voice from the packetized voice generation section 1 is checked (step103), and when there is a new packetized

voice, the duplicate of a packetized voice is stored in memory 3 (step 104). A packetized voice is transmitted to the communication link layer 4 after that (step 105).

[0028] Drawing 3 is the sequence diagram showing the actuation at the time of having received from the packet 0 to the packet 3 every 10msec(s), there being no reception of 40msec packet after that since it is silent, and receiving a packet 7 from a packet 4 at intervals of 10msec after that further. The reproduced packet is transmitted [ 10msec(s) ]. The same packet is transmitted twice. However, 2nd transmission of a certain packet is performed before transmission of the 1st time of the following packet.

[0029] Next, other operation gestalten are explained.

[0030] It is possible to make the time delay at the time of duplicate packet transmission into one half in operating the packet duplicate section 2 at intervals of the one half of spacing shorter than a packet-ized time interval, for example, a packet-ized time interval, i.e., 5msec.

[0031] Moreover, it is possible by generating two or more duplicates, shifting time amount, and transmitting to make still smaller the probability for a packetized voice to be canceled. However, transmission of two or more

duplicates of a certain packet is performed before transmission of the 1st time of the following packet. When following, for example, transmitting two duplicates, spacing of the packet duplicate section 2 of operation is 5 or less msec.

[0032] Furthermore, you may make it transmit the packetized voice memorized by memory 2 times or more without transmitting a new packetized voice, when there is a new packetized voice.

[0033]

[Effect of the Invention] As explained above, according to this invention, by the packetized voice transmitting side, time amount is shifted and two or more are transmitted for the same packetized voice. The packet which arrived previously will be adopted in a receiving side. Since there are few probabilities for both of packetized voices to be canceled, they can lessen voice quality degradation by cancellation of a packetized voice.

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## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is drawing showing the configuration of the packetized voice transmitting method by the operation gestalt of this invention.

[Drawing 2] It is the flow chart which shows actuation of the packetized voice transmitting approach by the operation gestalt of this invention.

[Drawing 3] It is the sequence diagram showing the example of the packetized voice transmitting method by the operation gestalt of this invention of operation.

[Description of Notations]



1 Packetized Voice Generation Section

2 Packet Duplicate Section

3 Memory

4 Communication Link Layer